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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,121	06/12/2002	Holly Ann Comanzo	RD-29360	1152

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH CENTER
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EXAMINER
KOSLOW, CAROL M

ART UNIT	PAPER NUMBER
1755	

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/064,121	COMANZO ET AL.	
	Examin r	Art Unit	
	C. Melissa Koslow	1755	

-- The MAILING DATE of this communication app ars on th cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 16-35 is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 June 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

It is noted page 410 is missing from the supplied pages of "Phosphor Handbook". It is requested applicants provide this missing page.

In view of the papers filed 8 July 2003, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by the addition of Venkatesan Manivannan.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of the file jacket and PTO PALM data to reflect the inventorship as corrected.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner was unable to find the claimed limitation that the "phosphor being capable of absorbing at least 80% of exciting UV radiation at wavelength of about 254 nm" in the

specification. Applicants can either point out where in the specification this limitation appears or insert this limitation into the specification to overcome this rejection.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by the Derwent abstract for KR 2002003886 A.

This abstract teaches a lanthanum gallate phosphor having the formula $La_{1-x}GaO_3:xEu$, where x is preferably 0.05-0.2. From this formula, it is clear that the europium in the +3 state. The taught amount of europium falls within the claimed range. Accordingly, one of ordinary skill in the art would expect the taught phosphor to inherently have emission and absorption properties that fall within the claimed property ranges. The claimed phosphor reads upon that taught.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 77 (52)-28745 B.

The abstract for this reference teaches a gadolinium aluminate phosphor activated by europium, which has the formula $GdAlO_3:Eu$. The process in the abstract and column 2 shows that the europium is in the +3 state since Eu_2O_3 is used as the precursor in the process and the precursor mixture is calcined n an oxidizing atmosphere. Thus there is no indication that the trivalent europium in europium oxide is reduced to divalent europium. Column 2, line 20 teaches

the amount of europium in the phosphor is about 0.5-10 mol% and the example in lines 30-35 in column 2 produces a gadolinium aluminate phosphor containing 0.9 mol%, when calculated from the taught grams. The taught amount of europium falls within the claimed ranges. Accordingly, one of ordinary skill in the art would expect the taught phosphor to inherently have emission and absorption properties that fall within the claimed property ranges. The claimed phosphor reads upon that taught.

Claims 1, 4-8 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Borchardt.

This reference teaches phosphors having the formula $(RE_{1-x}Eu_x)_2O_3 \bullet Al_2O_3$ or $(RE_{1-x}Eu_x)_2O_3 \bullet Ga_2O_3$, where RE can be Y, La or Gd and x is 0.03-0.8. The reference exemplifies $YAlO_3$:0.2Eu, $LaAlO_3$:0.2Eu, $GdAlO_3$:0.2Eu and $YGaO_3$:0.2Eu. The taught amount of europium falls within the claimed ranges. Accordingly, one of ordinary skill in the art would expect the taught phosphor to inherently have emission and absorption properties that fall within the claimed property ranges. Column 7, lines 22-49 teaches the taught phosphor can be blended with other conventional phosphors, such as blue and green emitting phosphors and that this blend can be used in fluorescent tube lights, which are known to comprise a gas source. The claimed phosphor, blend and light source read upon those taught.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiang et al.

This reference teaches $GdAlO_{3+\delta}$:$0.08Eu^{3+}$ and $LaAlO_{3+\delta}$:$0.08Eu^{3+}$, where δ means the atomic ratio of elemental oxygen is near 3 but can also be greater than 3. Thus the taught formulas overlap the claimed formulas. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). One of ordinary skill in the art would expect the taught phosphor to inherently have emission and absorption properties that fall within the claimed property ranges in the overlapping composition. The reference suggests the claimed phosphor.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over by the Derwent abstract for KR 2002003886 A.

As discussed above, the abstract teaches a lanthanum gallate phosphor having the formula $La_{1-x}GaO_3$:xEu, where x is preferably 0.05-0.2. From this formula, it is clear that the europium in the +3 state. The taught amount of europium overlaps the claimed range. Accordingly, one of ordinary skill in the art would expect the taught phosphor to inherently have emission and absorption properties that fall within the claimed property ranges, when the amount of europium falls withn the claimed ranges. The reference suggests the claimed phosphor.

Claims 3, 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 77 (52)-28745 B.

As discussed above, this reference teaches a phosphor having the formula $GdAlO_3:Eu^{3+}$, where the amount of europium is 0.5-10 mol%. This amount overlaps the amount of europium in claim 3. Accordingly, one of ordinary skill in the art would expect the taught phosphor to inherently have emission and absorption properties that fall within the claimed property ranges, when the amount of europium falls withn the claimed ranges. The abstract teaches the phosphor is useful as the red fluorescent material in mercury vapor lamps. It is well known in the art to include blue and green emitting phosphors blended with the red phosphor in mercury vapor lamps to improve the luminous efficiency and to adjust the color temperature and color of the light output to white, a known light output by mercury lamps. Thus one of ordinary skill in the art would have found it obvious to blend this phosphor with blue and green phosphors for use in white light emitting mercury vapor lamps, which means the color coordinates are substantially on a black body locus of the CIE chromaticity diagram. The reference suggests the clamed phosphor, blend and light source.

Claims 2, 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borchardt.

As discussed above, this reference teaches phosphors having the formula $(RE_{1-x}Eu_x)_2O_3 \bullet Al_2O_3$ or $(RE_{1-x}Eu_x)_2O_3 \bullet Ga_2O_3$, where RE can be Y, La or Gd and x is 0.03-0.8. This amount overlaps the amount of europium in claim 3. Accordingly, one of ordinary skill in the art would expect the taught phosphor to inherently have emission and absorption properties that fall within the claimed property ranges, when the amount of europium falls withn the claimed ranges. As discussed above, this reference teaches a light source comprising a gas discharge source and a blend of phosphors, where one is the taught and claimed europium activated rare earth aluminate

or gallate. While the claimed green and blue phosphors, which are well known in the art, are not taught in the reference as the blending phosphors, one of ordinary skill in the art knows the claimed green and blue phosphors are now preferred to be used instead of those taught by the reference due to environmental factors and because the claimed blue and green phosphors have better luminous properties. Accordingly, one of ordinary skill in the art would have found it obvious to blend the taught europium activated rare earth aluminate or gallate phosphors with one of claimed well known blue and green phosphors for use in the taught light sources instead of the taught blue and green phosphors. The reference suggests the claimed phosphor and light source.

Claims 16-35 are allowable over the cited art of record. The claimed processes, where at least one of the Group IIIB metal compounds is a halide is not taught or suggested by the cited art of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (703) 308-3817.. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached at (703) 308-3823.

The fax number for all official communications is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661 or (703) 308-0662.

cmk
August 15, 2003

C. Melissa Koslow
Primary Examiner
Tech. Center 1700